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NOTE ON THE COLLECTION OF HUMAN EMBRYOS IN THE ANATOMICAL LABORATORY OF JOHNS HOPKINS UNIVERSITY.

By Franklin P. Mall.

For a number of years past I have lost no opportunity to acquire human embryological specimens when found in any collection and have always urged physicians to send me any specimens they obtained in their practice. In addition I have written to many physicians for specimens, have sent out circulars and pamphlets in great number and have published requests in many of the medical journals. The result of this effort is a collection of specimens among the best in existence which has proved to be of great value in the study of human embryology and of anatomy in general. I take this opportunity to express my thanks to the many physicians who have often inconvenienced themselves in sending specimens to the anatomical laboratory.

The collection consists now of 208 specimens of young ova, both normal and pathological, over one-half of which were sent to me by physicians residing in Baltimore.[1] The specimens of the past five years are considerably better than the earlier ones, for many of them have been hardened in formalin, usually a ten per cent solution. To be sure, such specimens do not stain as well as when hardened in alcohol, but they retain their form, both internal and external. Excellent specimens are difficult to obtain, due to mechanical injury, delay in preservation and carelessness in shipping. The method which has given the best results is to place the entire specimen into a ten per cent solution of formalin as soon as possible and when it is to be shipped, place it in a bottle filled completely with the same fluid but without any packing around the specimen. Imitate the condition of a *fœtus in utero.*

Although embryologists have emphasized again and again the importance of preserving carefully early human embryos for study, it is necessary from time to time to remind physicians not to throw away the valuable material which is constantly coming into their possession. There are numerous questions which may be answered were there an abundance of specimens at hand, and they can be procured only through the cooperation of physicians in active practice. Not only do such specimens contribute to the study of human embryology but they are also of the greatest value in the study of the pathology of the embryo and of uterine

[1] From Maryland, 112; New York, 17; District of Columbia, 16; Pennsylvania, 11; Ohio, 7; Massachusetts, 6; Illinois, 6; Michigan, 4; California, 4; Iowa, 3; Wisconsin, 3; New Jersey, 3; Germany, 2; New Hampshire, 2, Tennessee, 2; Canada, 2; South Carolina, 2; Georgia, 2; Virginia, 1; Kentucky, 1; Colorado, 1; Maine, 1; North Carolina, 1; West Virginia, 1. Total, 208.

moles. In addition to morphological studies which may be made by the embryologists, the histories of the specimens are of the utmost importance in locating accurately the beginning of pregnancy and in determining the cause of pathological changes in the ovum in case it is diseased.

TABLE GIVING THE STATISTICS OF NORMAL AND PATHOLOGICAL SPECIMENS.

Number.	Normal.	Pathological.	Per Cent of Pathological.
First Month.			
1 to 126	18	14	44
127 to 208	8	19	70
1 to 208	26	33	56
Second Month.			
1 to 126	43	14	26
127 to 208	16	18	53
1 to 208	59	32	35
First and Second Months.			
1 to 126	61	28	32
127 to 208	24	37	61
1 to 208	85	65	43

Some statistics of the collection may be of interest. It may be noted that large specimens are not included in the records unless there are important data to be recorded. Of the 208 specimens 59 are of the first month, 91 of the second month and 58 over two months old. These figures include both the normal and the pathological specimens. Of the 150 specimens of the first and second months, 43 per cent are pathological, an increase in the per cent of pathological specimens in the collection five years ago. This is to be accounted for by the amount of selection there was made in the specimens before they were sent to me. The accompanying table gives the number of the specimens and per cent of pathological ones in the collection divided into two groups. Nos. 127 to 208 were collected during the past five years and Nos. 1 to 126 before that time. It will be seen that in both the first and the second months the per cent of pathological has increased markedly during the past five years. These latter figures are probably the more trustworthy, for in the 61 specimens of the first and second months collected during the past five years, practically no selection had been made by the physicians before they had sent them to me. So the statement may be made that about three-fourths of the abortions of the first month and about one-half of the second month give pathological specimens. These figures correspond much with those obtained by His but are considerably higher. In his collection 22 per cent of young ova were pathological, while if only the specimens which were obtained by midwives are considered, 40 per cent are pathological. Recently Prof. Kollmann has begun to collect all of the specimens obtained in the practice of a number of physicians in Basel and he informs me that hardly 3 per cent of them are normal. I think it probable that my highest figure, 75 per cent, would be further increased if my collection had been made in the same way Prof. Kollmann's was made. In the specimens collected during the past five years there are over half a dozen among them that are due to some kind of mechanical interference, either by the physicians who sent them or by some "professional" who preceded the physicians. About half of these are pathological, however, for the mechanical interference has started the destruction of the embryo.

From the study of the pathological ova the following conclusions have been drawn.

I. The embryo may become destroyed quite rapidly in young ova and in such cases the cause probably lies within the embryo itself, for in them the chorion is usually normal in appearance. The changes which do occasionally take place in the chorion of some of the specimens may be considered as secondary for the present. Under this heading there are three main subdivisions.

(1) The embryo is not formed or is destroyed in very young ova. Specimen No. 71 is the best representative of this type.

(2) The embryo is destroyed during the end of the second week, leaving only the umbilical vesicle (No. 180).

(3) The embryo is destroyed after the amnion is well formed, leaving only the umbilical cord (No. 198).

Varieties 2 and 3 may be changed into specimens without embryos by a further degeneration of the remnants of the embryo, thus leaving only the chorion, or the chorion and amnion, which may undergo a variety of secondary changes to form uterine moles.

II. Primary changes in the chorion may cause strangulation of the embryo which is followed by a variety of pathological changes. These may be brought together under two main heads.

(1) The strangulation may cause complete arrest of development of the embryo. In such cases the chorion continues to grow for a short time, the embryo becomes necrotic, ceases to grow and the tissues fill with blood-cells which wander from the blood-vessels.

(2) The strangulation only delays the development of the embryo. In such cases the chorion continues to grow for a long time, and its nutrition not being cut off entirely, the embryo continues to grow in an irregular fashion and a variety of pathological changes take place in it. The organs become irregular, usually degenerate and may wander. The tissues usually show fibrous atrophy and not infrequently there are all sorts of irregular hypertrophy.

The question most frequently asked about a human embryo is, How old is it? The answer could easily be given were it possible to locate accurately the beginning of pregnancy. The last menstrual period is usually assumed to mark this

time, but the more carefully the question is studied the more doubtful this assumption becomes. There are now a number of cases upon record in which conception could not possibly have taken place until after the last menstrual period, which are corroborated by the records of early human embryos. If this method of computing the age of an embryo and the duration of pregnancy is not correct, the younger the embryo the more apparent the error becomes. If the young embryos are arranged into two parallel lines, one according to their size, and the other according to their ages as computed by the last menstrual period, it will be found that 28 days will have to be added to some of the ages or subtracted from the rest in order to make even curves of the two lines.

Judging by the knowledge obtained from comparative embryology, embryologists have decided to subtract 28 from the larger figures rather than to add this sum to the smaller ones. The records of 37 embryos less than six weeks old show that in 8 of them their ages are to be computed from the last period, in 26 from the first lapsed period, and in 3 of them from some intermediate date. Furthermore, it is believed by embryologists that conception took place at the time of the last period in 8 cases or a few days before the first lapsed period in 26 cases. Until the exact date of the ovulation which gives rise to the conception is accurately located this question will not be fully settled.

If the embryologist's method of computing the age of human embryos is correct then embryos about one millimeter long are about 12 days old; 2.5 mm., 14 days old; 4.5 mm., 19 days old; 7 mm., 26 days old; 11.5 mm., 34 days old; and 17 mm., 41 days old. These figures are taken from exact records and by carrying them through I have found that their ages in days correspond remarkably well to the formula $\sqrt{100} \times$ length in mm. for all embryos from 1 to 100 mm. long. Multiply the length of the embryo from the vertex to the breech in millimeters by 100 and extract the square root and the result will be its age in days. In embryos from 100 to 220 mm. long from vertex to breech their length in millimeters equals their age in days.

In addition to the statistical and pathological studies of the specimens in the collection, two kinds of studies of the normal embryo are being carried on as rapidly as good specimens representing the proper stages are obtained. The first kind of study consists of working out every thing that can be recognized easily in the sections of a specimen by means of the wax-plate method of reconstruction. Embryo No. 2, a specimen of the end of the fourth week, was first worked out in this way. Later No. 12, a unique specimen of the end of the second week, was modeled in the same way. A model of No. 148 (3d week) is now being prepared by Mrs. Gage and it is hoped that an account of it will soon be published. Nos. 109 and 163 (5th week), 43 (6th week), and 22 (7th week) are gradually being modeled in our laboratory by Drs. Bardeen and Lewis and others, and in the course of time complete studies of these specimens will be ready.

The second group consists of studies of special tissues or of organs followed through a number of embryos. The excellent and laborious work of Drs. Lewis and Bardeen on group. Through this work we have now for the first time a knowledge of the development of most of the skeletal muscles of the human body. Incidentally this work has given the key by which a very elaborate set of records of the peripheral nervous system is being tabulated. I can heartily recommend these studies to the physicians and surgeons who constantly say that gross human anatomy is a finished science. On the contrary it is through embryology that the step in advance is to be made and through which human the development of the voluntary muscles belongs to this anatomy may become anthropological to produce in turn a new and rational regional anatomy.

There are a number of other studies of special questions in human embryology which are very valuable. I refer to them only by title in the bibliography of this brief communication. In addition the collection has often been used by those making studies in subjects closely related to human embryology; the bibliography gives references to them also.

EMBRYOS.

This list of embryos includes only those referred to in the papers given in the bibliography. The numbers of the embryos are given in Roman characters. Their length in millimeters follows in parentheses; p. indicates pathological. The Arabic figures following correspond with the numbers of the papers in the bibliography. When a figure is in italics it indicates that the description is also illustrated.

I (4½). Dr. Gavin, Baltimore. 13, 21, 27.
II (7). Dr. C. O. Miller, Baltimore. *1*, *2*, 4, *5*, *6*, 7, 8, 9, *10*, *11*, *12*, 13, *14*, *15*, *19*, 21, *24*, 27, *28*, *29*, *30*, *32*, 34, 35, *36*, *39*.
III. Prof. His, Leipzig, Germany. *10*, 30.
IV (7). Dr. Williams, Baltimore. 10, 30.
V (18½). Dr. Kittredge, Nashua, N. H. 10, 13, 21, 27, 30.
VI (24). Dr. C. O. Miller, Baltimore. 4, *10*, *11*, 13, *15*, *19*, 21, 22. 27, *30*.
VII (18). Dr. Booker, Baltimore. 30.
VIII (17). Dr. Ritter, Brooklyn, N. Y. 10, 30.
IX (17½). Dr. Eyelerhymer, Chicago. *10*, *11*, *15*, *19*, *22*, *30*.
X (24). Dr. W. S. Miller, Madison, Wis. *10*, *11*, *15*, 21, *30*.
XI (p). Dr. Kittredge, Nashua, N. H. *3*, *4*, *10*, 13, *21*, 27, *30*, *33*.
XII ($2\frac{1}{10}$). Dr. Ellis, Elkton, Md. 4, *10*, *11*, *12*, 13, *15*, *19*, *21*, *24*, 27, *28*, *30*, *32*, *36*, *39*.
XIII (p). Prof. His, Leipzig, Germany. 10, *21*, 30, *33*, 37.
XIV (p). Dr. Friedenwald, Baltimore. 10, *21*, 30, *33*.
XVI (7). Dr. Sherwood, Baltimore. 10, 13, 21, 27.
XVII (18). Dr. Cottell, Louisville, Ky. 10, 13, 21, 27, 30.
XVIII (7). Dr. Douglass, Nashville, Tenn. *10*, 13, *19*, 21, 27, *30*.
XIX (5½). Dr. Williams, Baltimore. *10*, 13, *19*, *21*, 27, *30*.
XX (p). Dr. Williams, Baltimore. 10, *21*, 33, 37.
XXI (p). Dr. Cullen, London, Canada. 10, *21*, 30, *33*.
XXII (20). Dr. Snively, Waynesboro, Penn. *10*, *12*, 13, *21*, 25, 27, *28*, *30*, *32*, *36*, *39*.
XXIII (70). Dr. Snively, Waynesboro, Penn. 13, 21, 27.
XXIV (p). Dr. C. O. Miller, Baltimore. 10, *21*, 30, *33*.

XXV (p). Dr. Lord, Baltimore. *21, 33,* 37.
XXVI (25). Dr. Simon, Baltimore, 13, 21, 27.
XXVII (23). Dr. Thayer, Baltimore. 13, 21, 27.
XXVIII (19). Dr. Sewall, Denver, Colo. 10, 13, 21, 27, 30.
XXIX (p). Dr. Booker, Baltimore. 10, 21, 33, 37.
XXX (60). Dr. Snively, Waynesboro, Penn. 13, 21, 27.
XXXI (24). Dr. Ballard, Baltimore. 13, 21, 27.
XXXII (p). Dr. Booker, Baltimore. 10, *21, 33,* 37.
XXXIV (60). Dr. Ellis, Elkton, Md. *10, 11,* 13, *15,* 18, 21, *22,* 27, *30.*
XXXV (13). Dr. C. O. Miller, Baltimore. 13, 21.
XXXVII (p). Dr. Gould, Philadelphia. 10, *21, 33.*
XLII (18). Dr. Wills, Los Angeles, Calif. 10, 13, 21, 27, 30.
XLIII (16). Dr. Booker, Baltimore. *10, 12, 14, 19, 24, 25,* 26, *28, 30, 32, 36.*
XLV (28). Dr. Douglas, Baltimore. *10, 11,* 13, *15,* 18, 21, *22,* 27, *30, 31.*
XLVI (135). Dr. Taylor, Baltimore. 13, 21, 27.
XLVIII (130). Dr. Wilson, Worcester, Mass. 10, *11, 15, 22,* 30.
XLIX (70). ——— 13, 21, 27.
LII (33). Dr. Gavin, Baltimore. 13, 21, 27.
LIII (16). Dr. McMorris, Belle Plaine, Ia. 10.
LIV (11, p). Dr. McMorris, Belle Plaine, Ia. 21, 33, 37.
LV (p). Dr. Watson, Baltimore. 10, 21, 33, 37.
LVII (23). Dr. Howard, Cleveland, Ohio. 10, 13, 21, 27, 30.
LVIII (p). Dr. Howard, Cleveland, Ohio. *21,* 30, 33.
LX (p). Dr. Dobbin, Baltimore. 21, 33.
LXIV (75). Dr. Zimmerman, Baltimore. 16.
LXV (120). Dr. Zimmerman, Baltimore. 16.
LXIX (13, p). Dr. Chabot, Baltimore. *21,* 33, 37.
LXX (p). Dr. Ellis, Elkton, Md. *21,* 33, 37.
LXXI (p). Dr. Whitcomb, Greenwich, N. Y. 21, 37.
LXXII (23). Dr. Arthur, Baltimore. 13, 21, 27, 33.
LXXIV (19). Dr. Irving Miller, Baltimore. *12,* 24.
LXXV (30). Dr. Ferguson, Berwick, Me. *31,* 34.
LXXVI (4½). Dr. Mitchell, Chicago. *12,* 13, 14, 21, *24,* 27, *28, 32, 34.*
LXXVII (p). Dr. Horn, Baltimore. *21,* 33, 37.
LXXVIII (p). Dr. Stoner, Harlan, Ia. *21, 33.*
LXXIX (33, p). Dr. Briggs, Blackville, S. C. 13, *18, 21,* 27, 33.
LXXX (5). Dr. Branham, Baltimore. 13, *21, 24,* 27, *28, 32, 34.*
LXXXI (20, p). Dr. Branham, Baltimore. 13, *21,* 27, 33.
LXXXII (p). Dr. Cassidy, Baltimore. *21,* 33, 37, *38.*
LXXXVI (30). Dr. Billingslea, Baltimore. *31.*
LXXXVII (4). Dr. Cole, Peru, Ill. 13, *21,* 27, 30, *33.*
LXXXVIII (10). Dr. Brumme, Detroit. 13, *21,* 27.
XC (36). Dr. Brumme, Detroit. *25.*
XCII (70). Dr. Ballard, Baltimore. 13, 27.
XCIII (p). Dr. Cassidy, Baltimore. 21, 33, 37.
XCIV (20, p). Dr. Knill, Detroit. 13, *21,* 27, 33.
XCV (46). Dr. Watson, Baltimore. 13, 21, *31, 38.*
XCVI (44). Dr. Spencer, San Francico. 13, 21, 27, 31.
XCVII (7, p). Dr. Goldman, Baltimore. *21,* 33.
XCVIII (125). Dr. Atkinson, Baltimore. 13, 16, 21.
XCIX (27). Dr. Carr, Durham, N. C. 13, 21, 27.
CIV (12, p). Dr. West, Bellaire, Ohio. *21,* 33.
CV (48). Dr. Watson, Baltimore. 13, 21, 27.
CVI (17). Dr. Gardner, Baltimore. 13, *21,* 27, *28,* 36.
CIX (11). Dr. Cushing, Baltimore. 13, 21, *24, 25,* 27, *28, 32,* 34, *36, 39.*
CX (8, p). Dr. West, Bellaire, Ohio. *21,* 33, 37.
CXIII (8). Dr. Gray, Washington. *24.*
CXIV (10). Dr. Gray, Washington, *24.*
CXV (3, p). Dr. Atkinson, Baltimore. *21,* 33, 37.
CXVI (5). Dr. Ryan, Springfield, Ill. 13, 21, *24,* 27.
CXVII (100). Dr. Ballard, Baltimore. 13, 21, 27.
CXVIII (25). Dr. Booker, Baltimore, 13, 21, 27.
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CXXIII (p). Dr. Boldt, New York. *21,* 30, *33,* 37.
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CXXXIV (p). Dr. Sommer, Trenton, N. J. *21,* 30, *33,* 37.
CXXXV (9, p). Dr. Mosely, Baltimore. *21,* 33, 37, *38.*
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CXXXVII (16, p). Dr. Watson, Baltimore. *21,* 30, 33.
CXXXVIII (112). Dr. Watson, Baltimore. 21, 27.
CXLI (8, p). Dr. West, Bellaire, Ohio. *21,* 33, 37.
CXLII (p). Dr. Sommers, Trenton, N. J. *21,* 33, 37.
CXLIII (p). Dr. Stick, Glenville, Pa. *21,* 30, 33, 37.
CXLIV (14). Dr. Watson, Baltimore. 21, *24,* 26, 27, 28, *34,* 36.
CXLV (33). Dr. Watson, Baltimore. 21, 27.
CXLVI (95). Dr. Watson, Baltimore. 21, 27.
CXLVII (p). Dr. Pole, Baltimore. *21,* 30, 33, 37.
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CXLIX (130). Dr. Hoen, Baltimore. 27, 33.
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CLII (31, p). Dr. Boldt, New York. 21, 33.
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CLVIII (p). Dr. Howard, Cleveland. 37.
CLIX (p). Dr. Golden, Elkins, W. Va. 21, 37.
CLXI (10, p). Dr. Cassidy, Baltimore. 21, 33.
CLXII (p). Dr. Wanstall, Baltimore. *37.*
CLXIII (9). Dr. Lamb, Washington. *24, 25, 28, 32,* 34, *36,* 39.
CLXIV (3½). Dr. MacCallum, Baltimore. *24, 32, 34, 38.*
CLXVI (2½, p). Dr. Cassett, Baltimore. *37.*
CLXVII (14½). Dr. Ritter, Brooklyn. *28.*
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CLXXXII (p). Dr. Lamb, Washington. 37.
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CXCI (p). Dr. Ellis, Elkton, Md. 37.
CXCV (p). Dr. Lamb, Washington, 37.
CXCVI (p). Mr. Brödel, Baltimore. 37.
CXCVIII (p). Dr. Larsen, Chicago. 37.
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CCI (20, p). Mr. Brödel, Baltimore. *37.*
CCIV (p). Dr. Lamb, Washington. 37.
CCV (6, p). Dr. Lamb, Washington. 37.
CCVII (16, p). Mr. Brödel, Baltimore. *37.*

BIBLIOGRAPHY.

Titles of papers based entirely or in part upon the collection of human embryos at the Anatomical Laboratory.

1. F. P. Mall.—A human embryo twenty-six days old. Jour. of Morph., V, 1891.

2. F. P. Mall.—Development of the lesser peritoneal cavity in birds and mammals. Ibid., V, 1891.

3. F. P. Mall.—A human embryo of the second week. Anat. Anz., VIII, 1893.

4. F. P. Mall.—Early human embryos and the mode of their preservation. Johns Hopkins Hospital Bulletin, 1893.

5. F. P. Mall.—Coelom. Ref. Handb. Med. Sci., Supplement, 1893.

6. F. P. Mall.—The heart. Ibid.
7. F. P. Mall.—Development of the thymus. Ibid.
8. F. P. Mall.—Development of the thyroid. Ibid.
9. F. P. Mall.—Human embryos. Ibid.
10. F. P. Mall.—Development of the human coelom. Jour. of Morph., XII, 1897.
11. F. P. Mall.—Ueber die Entwickelung des menschlichen Darmes und seiner Lage beim Erwachsenen. Arch. f. Anat. u. Physiol., Supplementband, 1897.
12. F. P. Mall.—Development of the ventral abdominal walls in man. Jour. of Morphol., XIV, 1898.
13. F. P. Mall.—The value of embryological specimens. Maryland Medical Jour., 1898.
14. F. P. Mall.—Development of the internal mammary and deep epigastric arteries in man. Johns Hopkins Hospital Bulletin, 1898.
15. F. P. Mall.—Development of the human intestine and its position in the adult. Ibid.
16. J. B. MacCallum.—On the histogenesis of the striated muscle fibre, and the growth of the pastorius muscle. Ibid.
17. W. F. Hendrickson.—The development of the bile capillaries as revealed by Golgi's method. Ibid.
18. F. P. Mall.—Supplementary note on the development of the intestine. Anat. Anz., XVI, 1899.
19. L. F. Barker.—The nervous system. D. Appleton & Co., New York, 1899.
20. J. G. Clark.—The origin, development and degeneration of the blood-vessels of the human ovary. Welch Festschrift, Johns Hopkins Hospital Reports, IX, 1900.
21. F. P. Mall.—A contribution to the study of the pathology of early human embryos. Ibid.
22. J. M. Berry.—On the development of the villi of the human intestine. Anat. Anz., XVII, 1900.
23. J. B. MacCallum.—On the muscular architecture and growth of the ventricles of the heart. Welch Festschrift, Johns Hopkins Hospital Reports, IX, 1900.
24. F. P. Mall.—On the development of the human diaphragm. Johns Hopkins Hospital Bulletin, 1901.
25. W. H. Lewis.—Observations on the pectoralis major muscle in man. Ibid.
26. R. G. Harrison.—On the occurrence of tails in man, with a description of a case reported by Dr. Watson. Ibid.
27. F. P. Mall.—Age of human embryos. Ref. Handb. Med. Sci., 2nd ed., III, 1901.
28. C. R. Bardeen and W. H. Lewis.—Development of the limbs, body-wall and back in man. Amer. Jour. of Anat., I, 1901.
29. F. P. Mall.—Comparative development of the coelom. Ref. Handb. Med. Sci., III, 1901.
30. F. P. Mall.—Development of the human coelom. Ibid.
31. Margaret Long.—On the development of the nuclei pontis during the second and third months of embryonic life. Johns Hopkins Hospital Bulletin, 1901.
32. W. H. Lewis.—The development of the arm in man. Amer. Jour of Anat., I, 1902.
33. F. P. Mall.—Pathological human embryos. Ref. Handb. Med. Sci., 2nd ed., III, 1901.
34. J. B. MacCallum.—Notes on the Wolffian body of higher mammals. Amer. Jour. of Anat., I, 1902.
35. F. P. Mall.—Development of the heart. Ref. Handb. Med. Sci., 2nd ed., IV, 1902.
36. M T. Sudler.—The development of the nose and of the pharynx and its derivatives in man. Amer. Jour. of Anat., I, 1902
37 F P Mall.—Second contribution to the study of the pathology of early human embryos. Vaughan Festschrift, 1903.
38. J. W. Williams.—Obstetrics. D. Appleton & Co., New York, 1903.
39. W. H. Lewis.—Human Embryology.—New International Encyclopedia, New York, 1903.

NOTE ON THE FRAMEWORK OF THE THYROID GLAND.

BY JOSEPH MARSHALL FLINT, M. D.,

Professor of Anatomy, University of California.

(From the Hearst Anatomical Laboratory of the University of California.)

In connection with some work on the digestive methods for the demonstration of the framework of organs, the writer had occasion to study the arrangement of the framework of the thyroid gland. This organ lends itself beautifully to the use of the destructive digestive method. The procedure employed in the preparation of the specimens used in this study has been fully described in a previous communication.[1]

A digested specimen of the thyroid after being cleared in glycerine forms a clear, glistening, highly refractive skeleton of the original block of tissue, preserving in general the form relations of the original block. The larger structures such as the blood-vessels and even the faint outlines of the follicles can be distinctly seen with the naked eye. Under the stereoscopic microscope the ultimate units of the structure are readily made out. The large vessels cut in cross section with their smaller branches radiating through the framework are recognized by the difference in diffraction resulting from the dense connective tissue with which they are embraced. In the thyroid there is no tendency for the follicles to accumulate into groups or become segregated by large septa of the framework, for there are no lobules or lobular membranes. The follicles apparently form in Ludwig's sense the true units of structure. The blood-vessels with their accompanying connective tissue make up the densest portion of the supporting framework and sometimes a suggestion of the lobular arrangement is given by these vessels as they ramify in the substance of the gland, but close focusing always reveals their exact nature. Almost the entire organ is made up of follicles, the form and relations of which are retained by the connective tissue which embraces them. The

[1] Flint: A New Method for the Demonstration of the Framework of Organs. Bulletin of The Johns Hopkins Hospital, vol. xiii, 1902.

reticulated basement membranes about the follicle are accentuated by the interfollicular framework. They stand out when near the surface as definite dark lines arranged in ovoid or spheroid shapes. The follicles are closely pressed against each other and do not look unlike a mass of superimposed bubbles with the nodes that outline their junction clearly shown in the depths. (Fig. 1.) The follicular membranes when viewed tangentially or in any other position than on edge are very transparent and can only be distinctly seen by rapid alterations in the quantity of light. Then they appear as fine, delicate membranes with a suggestion of the fibrillar structures showing under the high power. At the joints where two follicles unite, the framework appears somewhat thickened and prismatic in form, while at the nodes where three adjacent follicles come together the connective tissue takes the form of little pyramids. Small arterioles, venules and capillaries can be made out in the interfollicular framework or on the membranes which embrace the follicles. While the shape of the follicles is, in general, ovoid or spheroid,[2] they are so closely packed together that it is possible to find examples of almost any conceivable form; some are occasionally elongated, some polygonal, others prismatic, and still others almost cylindrical, but the predominating type is distinctly ovoidal or spheroidal. In studying the form of the follicles, the use of the stereoscopic microscope is especially desirable. When paraffin sections some 300μ thick are made of a piece digestion of the human thyroid and stained in aniline blue, the form of the follicles is then seen with great distinctness. In some preparations the follicles look a trifle more irregular owing to the fact that the sharper stain brings out the details of their form. The reticulated membranes traversed by small fasciculi of fibrils are visible outlining the fascicular spaces. Between them there is considerable interfollicular connective tissue which is much more marked in some situations than in others. Quantitatively it is distributed chiefly with reference to the large vessels. Proportionally, however, it seems to be much greater in the human thyroid than that of the dog. At the points where the large vessels pass through the gland, the follicles are often jammed into the angles formed by their branches, and here the follicular membranes are attached by numerous fibrils to the adventitia of the vessels. This attachment, however, is not firm for there is often a tendency for the follicles to tear away at these points, and here one sees, when they are viewed tangentially, a definite mosaic form of the follicular membranes and their nodes. No framework passes into the interior of the follicles as the spaces formed by the membranes are completely empty. When the colloid and the follicular epithelium are digested the spaces remain empty. This is clearly shown by studying the edges of the block of tissue where the irregular border is formed by the projection of the follicular membranes. The larger follicles measure 0.3 mm. in diameter, the smaller 0.1 mm. The dimensions of the irregular follicles are more difficult to determine, but their longest diameter is seldom greater than that of the largest spheroidal follicles. In an adenoma of the thyroid prepared by this method, there is a distinct tendency to lobulation, the diameter of each lobule containing about eight or ten follicles. These, however, at the same time were somewhat smaller than those of the normal gland.

When sections are cut from the digested blocks and stained with fuchsin or aniline blue and studied under the high power, a considerable quantity of fasciculated connective tissue is seen about the large vessels. (Fig. 2a.) The fasciculi are longitudinal, corresponding in general to the long axis of the blood-vessels. There are, however, many intertwining and interlacing and circularly running fibril bundles as well, arranged so as to give at the same time greater strength and elasticity. From these septa the fibril bundles or fasciculi run in between the follicles and form the interfollicular framework. The follicles in man (Fig. 2f) are about four times larger than the follicles of the dog (Fig. 3f), and the reticulated basement membranes (Fig. 2m) appear much heavier. These, as in the case of the dog, are often separated by blood-vessels, which are cut either longitudinally or transversely. Points are found, however, where it appears as though a single membrane separated the follicles. Under the higher powers the fasciculi about the vessels and the interfollicular spaces are clearly brought out. The bundles of fibrils stain homogeneously but their exact nature is easily seen at the frayed ends or at points where they break up into the individual fibrils of which they are composed. Some follicles near the larger vessels are surrounded by thick septa while those away from the larger vessels have a more delicate envelope. These when cut transversely, under the lower powers, look like irregular fine lines, but under the higher powers, however, the usual fibrils composing them can be easily seen. In the membranes which are cut tangentially the fine delicate fibrils that branch and anastomose and run in all directions are readily made out. At times fine fibril bundles run across the basement membranes. These, in some places, form the walls of the capillaries. At the follicular nodes, the fibrils and finer fibril bundles interlace with each other, thus locking the membranes together. Even in complete digestions, the meshwork of fibrils seems to possess a different diffraction from the clear spaces within the follicles. This may be due to the presence of an undigested homogeneous material left in the meshwork or simply represent the expression of some physical phenomenon of diffraction.

In piece digestions of the dog's thyroid the capsule can often be split into layers like that of many other glands, an outer looser layer and an inner which is more definitely adherent to the connective tissue of the parenchyma of the

[2] Streiff (Arch. f. mik. Anat., xlviii) has reviewed the literature on the shape of the thyroid follicles and has studied their form by means of the wax plate method. He concludes that the follicles do not communicate with each other but are in the form of closed vesicles separated from each other by connective tissue fibrils. Most of the follicles are in the form of round, ovoid or polyhedral vesicles but forms which appear either like tubules or even-branched follicles are sometimes found.

FIG. 1.—Piece digestion of the human thyroid fixed in Van Gehuchten, extracted with ether, digested with pancreatin, and cleared in glycerine drawn with stereoscopic microscope. Magnified 13 diameters.

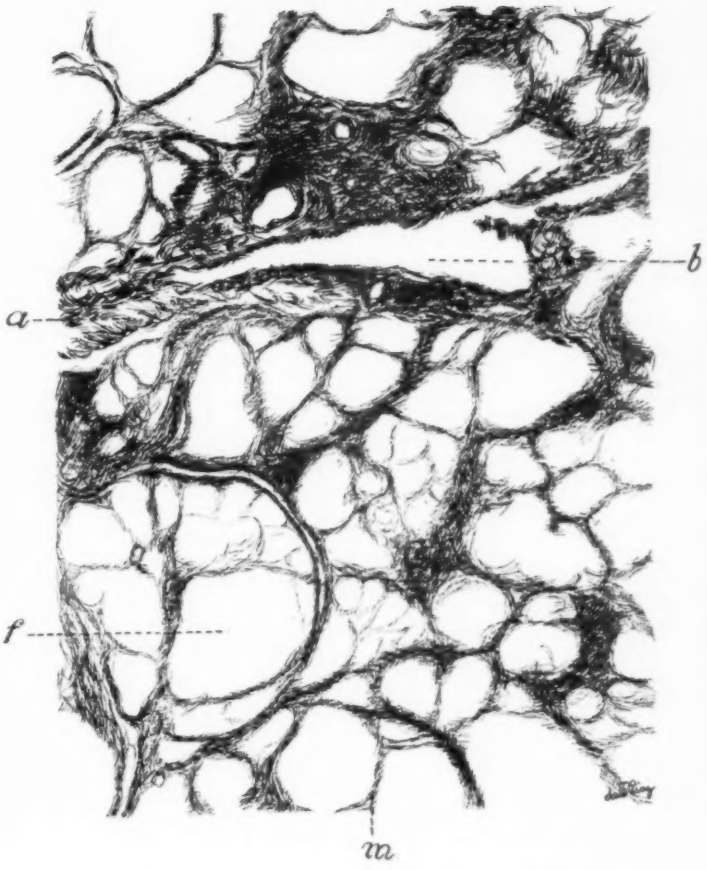


FIG. 2.—Sections of the block of tissue from which Figure 1 was drawn. Stained with aniline blue. Magnified 60 diameters.
a = fasciculated connective tissue about blood-vessels.
b = blood-vessels.
f = follicle.
m = reticulated basement membrane.

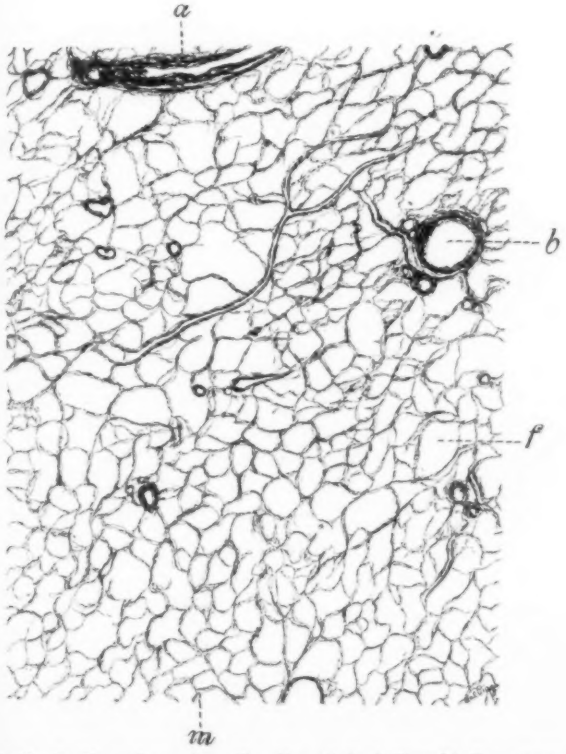


FIG. 3.—Sections from piece digestion of dog's thyroid. Same preparation and same stain as Figure 2. Magnified 60 diameters.
a = fasciculated tissue about blood-vessels.
b = blood-vessels.
f = follicle. *m* = reticulated basement membrane.

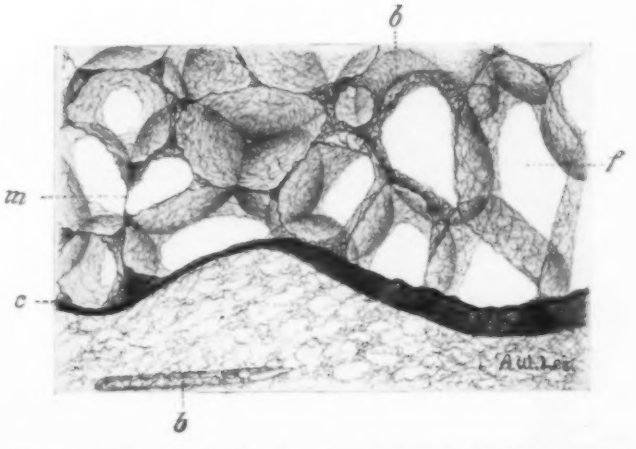


FIG. 4.—Section of piece digestion of dog's thyroid 150μ thick stained with aniline blue, drawn with stereoscopic microscope. Magnified 180 diameters.

gland. Blood-vessels penetrate from the capsule and carry with them the larger processes of connective tissue derived from that structure. But there are throughout the gland no definite septa or connective tissue processes, which divide it into units of structure comparable to lobes or lobules. The follicles are, like those of the human gland, chiefly spherical or ovoidal in shape, although it is possible to find many bizarre forms. They average approximately one-fourth the diameter of the human follicle. Here as in the human gland the form of the follicles are seen best in sections about 150μ thick stained with aniline blue (Fig. 3). The form and structure are brought out with greater sharpness than when the larger blocks are simply cleared in glycerine. In such preparations the follicles look a trifle more irregular owing to the fact that the sharper stain brings out the details of their form. The reticulated membranes show as fine faint blue webs bounding the follicles and with the high power the fibrils of which they are composed are distinctly visible. The interfollicular connective tissue is scant save in the neighborhood of the great vessels.

The basement membrane and the interfollicular framework are very clearly seen even in the glycerine specimens as fine lines with nodal points of junction. Between them the smaller blood-vessels ramify. The thyroid of the monkey has all the characteristics of the organ in the dog and the arrangement of its framework corresponds almost in all particulars in the two animals except that the follicles are nearly twice as large. In certain specimens it is possible to find the parathyroid. This is included in the general capsule of the thyroid in both dog and monkey but is separated from the follicular portions of the organ by a distinct fibrous capsule which embraces the smaller gland. The framework of the parathyroid is made up of small spaces bounded by delicate septa in which the ramifications of the blood-vessels can be seen. In unstained specimens of piece digestions the arrangement of the fibrils is so delicate that their structure and arrangement are not evident unless they have been previously stained with fuchsin or some similar dye. When sections are made of piece digestions of the dog's thyroid and stained with aniline blue, the perifollicular membrane and the connective tissue processes about the larger vessels can be resolved into their ultimate fibrillæ. No large processes of connective tissue are seen except in the neighborhood of the great vessels. The perifollicular membranes and the interfollicular connective tissue are all fibrillated. The fibrils around the follicles are arranged in the form of a dense, interlacing meshwork (Fig. 3m) so as to form distinct reticulated membranes. If septa have existed in the thyroid of the human being, dog or monkey at any stage of their development they have been lost in the subsequent development of the gland. Such a state of affairs would be comparable to the condition found in the submaxillary gland where the primitive septa, which in the embryo divide the gland into definite lobes, subsequently lose these relations in the further development of the organ. There has been noticed in sections of the thyroid of a human embryo a tendency for groups of follicles to be bound together by connective tissue processes. This arrangement has also been observed in one pathological gland, of which mention has been made above.

It is interesting to speculate on the role played by the follicles and their membranes in reference to the secretion of the gland. By many it has been supposed that the follicles enlarge until they rupture like the Graafian follicles of the ovary and that their contents are then carried to the systemic circulation through the lymphatics. Others have held that the products of glandular activity passed into the circulation through the membranes by osmosis. At any rate in the specimens of human, dog's and monkey's thyroid where the membranes are distinctly visible, no evidence of rupture is seen in any of them. The meshes are unquestionably large enough for the nourishment and end-products of glandular activity to pass to and from the cells through the reticulated membranes.

THE RESULTS OF SOME OBSERVATIONS ON BLOOD-PRESSURE IN MORBID CONDITIONS IN ADULTS.[1]

BY JOHN BRADFORD BRIGGS, M. D.,

Resident House Officer, Johns Hopkins Hospital.

(*Read before the Johns Hopkins Hospital Medical Society, November* 17, 1902.)

Two cases were reported to illustrate the interest of blood pressure determinations in the study of cardiac diseases. Both cases presented the picture of broken compensation in connection with lesions of the mitral valve. In one patient the blood pressure, as measured by a modified Riva-Rocci sphygmomanometer, was abnormally low; in the other case it was markedly raised. In both patients there was a return of the blood pressure to normal limits under esentially the same treatment, digitalis and rest in bed, with free purging. The conclusion was that the digitalis drugs are not necessarily, as they are used clinically, bound to raise the arterial blood pressure.

[1] Abstract of a paper by John Bradford Briggs, M. D., and Henry Wireman Cook, M. D., to be published in full later.

The value of a knowledge of the blood pressure in the diagnosis of obscure comatose conditions was illustrated by the second case, in which a large cerebral hemorrhage was found post mortem projecting into the lateral ventricle. During life the patient, who was brought into the hospital deeply comatose, with all reflexes gone and without localizing symptoms, was supposed to be uræmic on account of the character of the urine, and was subjected to free venesection. The blood pressure was enormously high, beyond the limits of accurate measurement, but at least equal to 400 mm. Hg. In view of Cushing's demonstration of the relations between intracranial and arterial pressures, and in view of the fact that in the rather scanty literature and also in their own experience they have been unable to find the record of any such pressures in nephritis or uræmia, the authors believe that in any case similar to theirs the diagnosis of intracranial hemorrhage could be based on observations of the blood pressure alone.

Especial attention has been paid to the study, by means of a modified Riva-Rocci instrument, of cases receiving routine or occasional stimulation in the wards of the Johns Hopkins Hospital. Continuous series of observations were obtained, at intervals of from two to five minutes for many hours, of the maximum arterial blood pressures in a varied set of cases during the period in which they were receiving one or another of the stimulant drugs. A continuous record of the pulse rate was obtained in each case also.

The effects of alcohol on the pulse, given as whiskey or brandy by the mouth, were never marked. Usually in non-alcoholics and in patients who have received but little alcohol previously as medicine, the ingestion of ℥ss-i of whiskey will produce a temporary rise in blood pressure, never lasting over thirty minutes, and typically followed by a slight but more permanent fall below the previous level. In some patients this fall is not preceded by any rise in blood pressure, and while it is occurring the pulse may actually feel of better quality to the finger. The total effect of alcohol then, on the vaso-motor system, is depression, *Gutnikow* having demonstrated its action in diminishing the reflex sensibility of the center in the medulla itself. The character of the blood pressure curve following the administration of alcohol by mouth, suggests that its primary effects on the pulse may be largely or in part reflex from gastric irritation. In this connection it was found that after the ingestion of 10-15 drops of tincture of capsicum a rise in blood pressure was observed of equal or even slightly greater duration than that seen after the administration of whiskey, ℥iv to vi, in the same patient. The rise in blood pressure produced by tincture of capsicum was not followed by any fall, as in the case of whiskey.

Strychnia hypodermically in moderate doses was found to cause a rise in pressure somewhat delayed as compared with that after alcohol, but continuing with far more steadiness, and persisting for from one to three hours. A similar rise in blood pressure, with more rapid onset and somewhat less permanent, was found to follow the administration of digitalin. The blood pressure raising effect of these drugs was not followed by any phase of depression, as in the case of alcohol. During the routine administration of these stimulants, especially with strychnine given over long periods, the blood pressure response to any single dose may be apparently absent, and in any case will be less marked than that following the first few doses given to the patient, but in these circumstances if the routine order be suspended for one or two periods, the blood pressure will be seen to fall in the absence of the stimulant, to return to its former level when the drug is resumed. This constant blood pressure level, as maintained by the use of strychnine and digitalin at regular intervals, represents the ideal to be sought after in the stimulant treatment of the toxic conditions, as illustrated especially in the severe cases of typhoid fever. In this class of cases alcohol, not being a true cardio-vascular stimulant, does not contribute to the maintenance of the "stimulation level" of the blood pressure curve, and the rational basis, for its use must be sought in some alteration of metabolism, and not in any assumed improvement of the force of the pulse.

Subcutaneous infusions of normal saline solutions have no stimulant effect on the pulse. When given slowly and at temperatures not exceeding 37° C., there is no change in the blood pressure level during or following their use. Given more rapidly, and at higher temperatures, they produce a quite transitory rise in blood pressure, which is obviously parallel to the amount of local irritation produced. In cases of collapse of the circulatory system due to severe hemorrhage, saline infusions may accentuate the natural tendency of the blood pressure to return to normal levels. Our results indicate that it is useless to infuse with any idea of filling up the depleted vessels; the water and salt are excreted probably quite as rapidly as they pass into the circulation. In surgical and traumatic shock, whose essential feature is a perilously low blood pressure, saline infusions are absolutely contraindicated—we have never seen such a case in which the subcutaneous administration of normal salt solution by the ordinary method did not produce a further fall in the blood pressure, an aggravation of a condition already sufficiently alarming.

On the other hand, cases of pure shock, quite uncomplicated by any of the severe symptoms of hemorrhage, or with those symptoms superadded, will frequently respond to the true cardio-vascular stimulants by prompt and steady increase in the blood pressure. The use of strychnia and digitalin seems to meet the first indication in the treatment of many cases of shock, and the best way to use them seems to be to give such quantities as will have the best effect on the blood pressure. In all classes of cases, medical and surgical, a study of the blood pressure is the most accurate guide to the use of the stimulant drugs.

THE CLINICAL VALUE OF BLOOD-PRESSURE DETERMINATIONS AS A GUIDE TO STIMULATION IN SICK CHILDREN.[1]

BY HENRY WIREMAN COOK, M. D.,

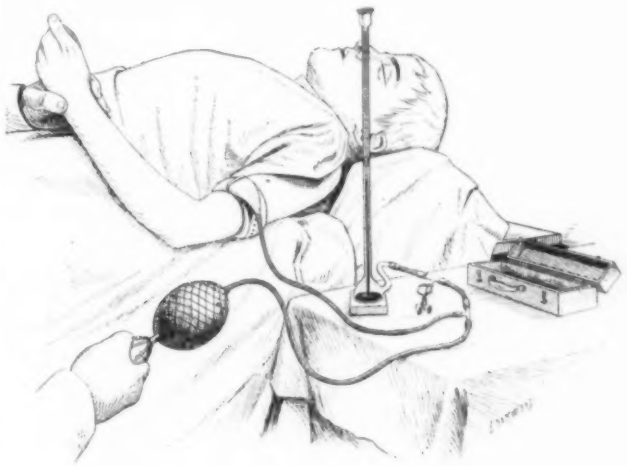
Resident House Officer, Johns Hopkins Hospital; Late Assistant Resident Physician, Thomas Wilson Sanitarium.

(From the Clinical Department of the Thomas Wilson Sanitarium for Sick Children.)

The introduction into clinical medicine within the past few years of a practical means of numerically representing pulse force marks an advance in the possibility of accurate judgments in morbid conditions that deserves to rank with the methods for determining the degree of anæmia, leucocytosis, or pyrexia. Though the trained touch of the clinician may be sensitive to even slight immediate changes in pulse force, still the indefinite basis afforded by mental impressions of which no accurate record can be kept makes it impossible that variations in pulse force from hour to hour or day to day could be followed with any degree of certainty. Thus an apparatus which not only gives in numerical terms an equivalent of existing arterial tension but also makes possible the graphic representation of its variations under treatment, puts the clinician in closer touch with the patient's condition by the difference between vague estimates on pulse force and its actual equivalent in millimeters of mercury. If the accurate estimation of blood pressure from tactile impressions is difficult in adults it is doubly so in children where the tension is by comparison low and the rate high. The most trained touch would find it difficult to detect any but marked changes in a child's pulse force where there is a pressure of 80 millimeters of mercury and a rate of 180. Yet comparatively trivial causes may send the pulse rate of a child to that figure and it is extremely important to know if this is accompanied by an actual drop in pulse force, thus indicating the need of a stimulant.

In view of the difficulty of regulating stimulation in sick children by the symptoms ordinarily observed, such as pulse rate and character, temperature, and general condition, routine blood pressure determinations were made last summer at The Thomas Wilson Sanitarium with the idea of obtaining in this way a more accurate criterion for the choice and administration of stimulants.

The instrument found most convenient and suitable (see cut) is a modification of the original Riva-Rocci sphygmomanometer, and while differing from that apparatus in manner of construction, embodies the same principle.[2] A closed system of air connects a rubber bulb held by the operator, a rubber band placed around the middle of the upper arm of the patient and a mercury manometer. The operator increases the pressure within the closed system, simultaneously compressing the arm of the patient and raising the mercury column of the manometer. According to the physical law of gases equal pressure is being applied at every point in the air system. When the patient's pulse is obliterated in the radial at the wrist, the height of the mercury column will approximately represent the maximum arterial blood pressure.



A model of the original instrument was found unwieldy for bedside use and impracticable for carrying from place to place. It was found possible to have a manometer made entirely of glass with but one outlet tube to the mercury reservoir, and so jointed in the middle that it could be packed into a very easily portable box. The tubing and connections were also simplified as much as possible. The mercury manometer was considered an essential for registering the pressures, as the spring and aneroid devices used with some instruments are unavoidably subject to errors of adjustment.

In recording observations, use was made of the graphic chart method after Cushing, and the pulse rate was noted with each blood pressure observation. In determining the effects of any stimulant treatment, as far as possible repeated pressures at short intervals, such as five minutes, were taken for some time before the treatment was begun, during its administration and while its effect lasted. Preliminary observations were made on cases not requiring stimulation, such as healthy children and convalescents, in order to obtain

[1] Abstract of a paper read before the Johns Hopkins Hospital Medical Society, November 17, 1902, and to be published in full in American Journal of Medical Science, March, 1903.

[2] A very satisfactory model of this modification intended for use by the general practitioner has been put on the market by Messrs. Elmer and Amend, 205–211 3rd Ave., New York

some idea of normal limits. During the first six months we may expect a blood pressure of from 75 to 90 millimeters; during the second year from 85 to 95 millimeters, and during the rest of early childhood from 90 to 105 or 110 millimeters. The blood pressure of children was found to be a much more absolute quantity than in the adult when arteriosclerosis and great differences in musculature have to be taken into account. For a child over 18 months of age 80 may be considered moderately low, 70 to 75 low, and 60 very low. Physiological rises in blood pressure occur in a healthy child from crying, pain, coughing, or any form of excitement and after feeding, but these normal reactions do not as a rule confuse observations on cases requiring stimulation, as such a child is so often listless and cannot take much nourishment and the vasomotor system seems unable to respond to physiological stimuli.

Observations directed toward determining the effect of the routine stimulant treatments upon the blood pressure gave the following results: Alcohol was unsatisfactory for immediacy, permanency, or reliability as a stimulant in single doses. In repeated doses it appeared to have a marked and permanent beneficial effect. Thus it would seem not to be indicated where urgent stimulation was required, while very useful during the course of a depressing toxic or marantic illness where, besides its doubtful stimulant action, it is of value as a conserver of energy in the nature of a food. Strychnine was found to have a more positive effect on the blood pressure. Hypodermic doses of 1/400 gr. to infants during the first year and 1/200 gr. during second year and 1/100 during early childhood, as a rule, produced a rise in blood pressure in 10 to 20 minutes which was well maintained for two to six hours, as long as the child was not moribund. Digitalin hypodermically in equal doses acts more quickly and produces a higher rise in blood pressure, but the elevation is not maintained for so long a period. The rise usually begins in from 5 to 10 minutes, may reach as high as 20 or 30 millimeters and lasts one or two hours.

Children that do not need stimulation do not show these marked responses to strychnia and digilatin, nor do the moribund when the vasomotor center is insensitive to stimulants. It is in the large intermediate class of toxic and marantic conditions accompanied by a low tension pulse, met with in pediatrics, that carefully regulated drug stimulation is so satisfactory in its beneficial results. Many desperate cases may actually be kept alive for days by the artificial vitality of drug stimulation, in the hope meanwhile that eliminative or recuperative powers may overcome the morbid process.

Infusions of normal saline solution were found unsatisfactory for any true stimulant effect, though they seemed useful in some toxic and wasting conditions either by increasing elmination or supplying needed fluid to the tissues. They seem inadvisable in any acute prostration or collapse as the afferent impulses from the needle puncture and local tissue distension only make further drains upon the lowered vitality. In these conditions, digitalin, which acts most promptly, is the drug of choice, followed by strychnine, which maintains the bettered condition.

With this knowledge of the effect of drugs on the circulation as a basis, blood pressure determinations were made in cases requiring stimulation and the stimulants were administered with the view of maintaining fairly equable and approximately normal tension in the arterial system, believing that such a condition favored recovery.

It was found that by routine determinations every one, two or three hours according to the severity of the case, variations in blood pressure could be met and corrected by regulating the stimulants according to the indications of the blood pressure chart. At night, especially, where the children could not be kept under such close medical surveillance, blood pressure observations were found very useful in avoiding errors in the quantity or period of stimulation. The night nurse making occasional determinations, regulated the stimulant by the indication so afforded, and this method seemed a much safer index for the prevention of either over stimulation, or lowered vitality and collapse, than the usual periodic routine order.

It would seem practicable in hospitals or private practice, where trained nurses are employed, that a chart of arterial tension should be kept in addition to a chart of pulse and temperature to afford a better guide for stimulative treatment. Without a nurse the practitioner may make once or twice daily a blood pressure determination to supplement his more general impression of the case as to the necessity and amount of stimulation required.

In conclusion: Although it must not be inferred that blood pressure observations are considered the only measure of a patient's condition, or that any single observation necessarily gives an absolute indication for treatment, still, in general, it would seem that blood pressure observations which constitute a numerical index for the mechanism most affected by stimulation would be the best single guide to the choice and administration of stimulants.

THE JOHNS HOPKINS HOSPITAL BULLETIN.

The Hospital Bulletin contains details of hospital and dispensary practice, abstracts of papers read, and other proceedings of the Medical Society of the Hospital, reports of lectures, and other matters of general interest in connection with the work of the Hospital. It is issued monthly.

Volume XIII is now completed. The subscription price is $1.00 per year. The set of thirteen volumes will be sold for $32.00.

RESOLUTIONS ON THE DEATH OF DR. HENRY W. OCHSNER.

At a meeting of the University of Wisconsin Alumni Association, on the twenty-fifth of November, 1902, in the Young Men's Christian Association room of the Johns Hopkins Medical School, presided over by Dr. Guy L. Hunner, the following resolutions were adopted:

Whereas, We have lost by death our beloved colleague, Henry William Ochsner;

Be it Resolved, That we, the University of Wisconsin Alumni Association of the Johns Hopkins Medical School and Hospital, do express to his family our heartfelt sympathy in their great bereavement.

During years of association at the University of Wisconsin, at the Johns Hopkins Medical School, and in the Johns Hopkins Hospital, we have grown to love him for his purity of character, his devotion to duty, and his fidelity as a friend.

And, Be it Further Resolved, That a copy of these resolutions be transmitted to his family and published in the Bulletin of the Johns Hopkins Hospital, in the University of Wisconsin Alumni Magazine, in the Daily Cardinal, and in the Buffalo County (Wisconsin) Journal.

FREDERICK J. GAENSLEN,
KENELM J. LEE,
ARTHUR W. MEYER,
Committee.

NOTES AND NEWS.

Dr. Herbert W. Allen, House Medical Officer during 1900 and 1901, resides at 546 Sutter Street, San Francisco, California.

Dr. A. D. Atkinson, Assistant Resident Physician in 1895 and 1896, is Associate in Clinical Medicine, University of Maryland, and Visiting Physician to the Children's Hospital. Address: 21 West Chase Street, Baltimore.

Dr. John M. Berry, House Medical Officer in 1901 and 1902, resides at 22 Lancaster Street, Albany, N. Y.

Dr. Milton Bettmann, House Medical Officer during 1900 and 1901, died in Paris, May 30, 1902.

Dr. E. Bates Block, Assistant Resident Physicion in 1896 and 1897, is Lecturer on Nervous Diseases in the Atlanta College of Physicians and Surgeons, Visiting Physician to the Presbyterian Hospital, Neurologist to the Tabernacle Infirmary, and a member of the Board of Medical Visitors to the Public Schools, Atlanta. Address: 713 Empire Building, Atlanta, Ga.

Dr. George Blumer, Assistant Resident Surgeon from 1893 to 1894, Assistant Resident Physician from 1894 to 1895, and Assistant in Pathology from 1895 to 1896, is Professor of Pathology and Bacteriology in the Albany Medical College and Director of the Bender Hygienic Laboratory. Address: 247 State Street, Albany, N. Y.

Dr. Charles H. Bunting, House Medical Officer during 1901 and 1902, is Assistant Demonstrator of Pathology, University of Pennsylvania. Address: Medical Hall, University of Pennsylvania, Philadelphia, Pa.

Dr. W. J. Calvert, appointed House Medical Officer in 1898 but did not enter upon service, is Lecturer on Tropical Diseases in the Medical Department of Washington University, St. Louis, Mo. Address: 3732 Olive Street, St. Louis, Mo.

Dr. C. N. B. Camac, Assistant Resident Physician in 1896 and 1897, is Instructor in Clinical Pathology, Cornell Medical School, Chief of Clinical Department of General Medicine of the Cornell Dispensary, and Visiting Physician to the City Hospital, New York. Address: 108 East 65th Street, New York City.

Dr. A. W. Elting, House Medical Officer in 1898 and 1899, is Surgeon to the Child's Hospital, Albany, and Chief of Surgical Clinic, Albany Hospital. He is also Lecturer on Surgical Pathology in the Albany Medical College, and Teacher of Clinical Surgery in both the Child's and Albany Hospitals, as well as Secretary of the Albany County Medical Society. Address: 247 State Street, Albany, N. Y.

Dr. McPheeters Glasgow, Assistant Resident Gynecologist in 1896, is Visiting Surgeon to the St. Thomas Hospital, Nashville, Tenn. Address: 151 North Spruce Street, Nashville, Tenn.

Dr. Norman B. Gwyn, Assistant Resident Physician from 1896 to 1900, is Instructor in Medicine, University of Pennsylvania. Address: 225 South 20th Street, Philadelphia, Pa.

Dr. Henry Harris, House Medical Officer in 1899 and 1900, is Instructor in Physical Diagnosis, Cooper Medical College, and First Assistant in the Medical Clinic, Cooper Medical Dispensary. Address: 502 Sutter Street, San Francisco, California.

Dr. T. W. Hastings, House Medical Officer in 1898 and 1899, is Assistant Attending Physician, Department of General Medicine, Cornell Dispensary. Address: 72 West 87th Street, New York City.

Dr. Joseph H. Hathaway, House Medical Officer in 1901 and 1902, is a member of the medical staff of the Glen Springs, Watkins, N. Y.

Dr. J. M. Hitzrot, House Medical Officer in 1901 and 1902, is Ambulance Surgeon to the New York Hospital, New York.

Dr. Louis W. Ladd, House Medical Officer in 1900, is Clinical Microscopist to Lakeside Hospital and Lecturer on Clinical Microscopy, Western Reserve University Medical School. Address: The Montana, Cleveland, Ohio.

Dr. David R. Lyman, Assistant Resident Obstetrician in 1900 and Assistant Resident Surgeon in 1901, is Assistant Resident Physician, Adirondack Cottage Sanitarium, Saranac Lake, N. Y.

Dr. Irving P. Lyon, House Medical Officer during 1897 and 1898, has resigned his position as Clinical Pathologist at the New York State Pathological Laboratory, Buffalo. Address: 531 Franklin Street, Buffalo, N. Y.

Dr. J. D. Madison, House Medical Officer in 1898 and 1899, has resigned his position as Assistant Physician at Danvers Insane Hospital, Hathorne, Mass., and is at present located at 199 Twenty-third Street, Milwaukee, Wis.

Dr. H. W. Ochsner, appointed House Medical Officer for 1902, died of typhoid fever at the Hospital, November 25, 1902.

Dr. Richard F. Rand, House Medical Officer during 1900 and 1901, has resigned his position as Resident Surgeon at the Parker Hospital, University of Missouri, and is at present located in New Haven, Conn. Address: 220 Orange Street, New Haven, Conn.

Dr. Hunter Robb, Resident Gynecologist from 1889 to 1892, is Professor of Gynecology, Western Reserve University. Address: 702 Rose Building, Cleveland, Ohio.

Dr. Maurice Rubel, House Medical Officer during 1901 and 1902, resides at 3341 Wabash Avenue, Chicago, Ill.

Dr. J. M. Taylor, Assistant Resident Gynecologist in 1900 and 1901, is located at the Pierce Building, Boise, Idaho.

Dr. Paul G. Woolley, House Medical Officer in 1900 and 1901, has been appointed to the position of Pathologist and Bacteriologist at the Government Laboratories in Manila, P. I.

Dr. Sarah D. Wyckoff, House Medical Officer during 1899 and 1900, resides at 68 West South Street, Wilkes-Barre, Pa.

Dr. J. L. Yates, House Medical Officer in 1899 and 1900, and Assistant Resident Surgeon in 1901, is Instructor in Pathology, University of Pennsylvania. Address: The Bartram, Philadelphia, Pa.

NOTES ON NEW BOOKS.

Text-Book of Medical Jurisprudence and Toxicology. By JOHN J. REESE, M. D. Sixth edition. Revised by Henry Leffman, A. M., M. D., Professor of Chemistry and Toxicology in the Woman's Medical College of Pennsylvania. Price $3. (*Philadelphia: P. Blakiston's Son & Co., 1012 Walnut St., 1902.*)

The portion of this volume which treats of Medical Jurisprudence is written clearly and sensibly and furnishes the modicum of information desired by physicians and general practitioners who may be called upon to seek a guide in an occasional excursion into the misty field of law as applied to medicine. There are excellent chapters upon wounds, injuries, the identification of the dead, and the various forms of violent death. We are gratified to find that the author doubts the possibility of spontaneous combustion, that old-time "will-o'-the wisp" of science, and very sensibly adds: "Although some remarkable instances are related of apparent spontaneous combustion of the human body, originating while alive, on close investigation it will be found that some source of fire had invariably been present, from which the combustion took its origin, such as a lighted pipe or candle, and that the body was that of a habitual spirit drinker and nearly always that of a very fat person, conditions favorable for the process of combustion when once originated." We notice that reference is made under asphyxia to the necessity of a spectroscopic examination of the blood to detect the presence of carbon monoxid.

The section on insanity, although concise, is generally satisfactory. The use of the term "partial moral mania" is not in accordance with modern views and hence is misleading. It should be banished from the terminology of treatises on the medical jurisprudence of insanity.

The best portion of the book and one which is worthy of the highest praise is that which treats of Toxicology. In this are given a detailed account of the action of poisons, their behavior in the animal body, the antidotes for them and the means of detecting them when they remain in the tissues after death. These various details are presented clearly and systematically and the knowledge which is to be acquired by the student is modern and sufficiently full to constitute a safe guide. We are gratified to see a special reference to the toxicity of wood alcohol. The book is worthy of general use.

A Text-Book of Histology and Microscopic Anatomy of the Human Body, Including Microscopic Technique. By LADISLAUS SYMONOWICZ, A. O., Professor of Histology and Embryology in the University of Lemberg. Translated and edited by John Bruce MacCallum, M. D., Johns Hopkins University, Baltimore. In one octavo volume of 435 pages, illustrated with 277 engravings, including 57 plates in color and monochrome. (*Philadelphia and New York: Lea Brothers & Co., 1902.*)

Symonowicz's "Lehrbuch der Histologie und der mikroskopische Anatomie" was published in several parts, which appeared at intervals during the last few years and attracted attention by reason of the superiority of its contents, more particularly by reason of the excellence of its illustrations, many of which are in the form of colored lithographic plates. Its appearance

in the form of a carefully edited American edition must, therefore, be regarded as a distinct addition to the text-books of Histology, now at the command of instructors teaching English-speaking students. The editor's preface contains the statement that "the spirit and characteristics of the German original have been carefully retained, changes in the text and illustrations being made only when some distinct advantage was attained. Those changes resulted mostly in enlargements." A familiarity with both the original and this new edition enables one, however, to detect in the latter numerous alterations in both text and illustrations, which are distinctly to its advantage.

About one-third of the text is devoted to the consideration of the tissues, which are classified under the heads of epithelial and glandular tissues, supporting and interstitial tissues, muscular tissues and nerve tissues. The remainder of the text (exclusive of some forty pages, devoted to general and special technique) is given up to a consideration of the microscopic anatomy of the organs. Throughout the entire work consideration is given not only to the structure of the tissues and organs in their full development, but also to their histogenesis, which is discussed in the light of most recent investigations and is given much more fully than is generally the case in text-books of histology, and in this respect Dr. MacCallum has added materially to the usefulness of this volume.

In discussing the microscopic anatomy of organs and glands, the editor has departed in many respects from the original text, especially in giving emphasis to the structural units to be recognized in many of them; this necessitated a fuller consideration of the vascular supply of the organs and the addition of a number of figures obtained from reconstructions made from serial sections of injected preparations. In considering the structure of the liver and kidney, in which organs there is not observed a definite separation into toxic units of structure, suggestions are made concerning the existence of secretory and blood-vascular units, which will serve to elucidate the microscopic anatomy of these organs. In thus emphasizing the existence of structural units in glands and organs and collating from the literature figures where such units are portrayed in a pictorial way, the editor has rendered a notable service not only to the students of normal histology, but also to the students of pathologic histology. Among the additions made, attention should be drawn also to the excellent, but perhaps too brief description of the medulla and mid-brain, for which the editor is indebted to Dr. Sabin, illustrated by a number of figures showing sectional views of a model of this portion of the central nervous system, made by Dr. Sabin according to the Born wax-plate reconstruction method.

The text, as a whole, is clear and concise, and in general the views expressed in it are those found in the latest literature and the space allotted to the discussions of the various tissues and organs is in general in proportion to their importance. In the excellent chapter on the muscular tissues is felt the influence of Dr. MacCallum's own investigations. The chapters on the connective tissues and on the adenoid tissues and organs are based largely on the results of observations made in the Anatomical Laboratory of the Johns Hopkins University; indeed, the influence of the numerous researches which have emanated from this laboratory are felt throughout the whole work. In a future edition, somewhat more space might with propriety be allotted to a consideration of the elements of the blood and more particularly to those of the lymph and a fuller discussion of their relation to the hematopoietic tissues might be considered. The same may also be said concerning the general subject of the innervation of the organs, which is treated on the whole less satisfactorily than are their lymph and blood-vascular supply.

Nearly all of the illustrations of the German original, the majority of which are exceptionally good, are retained and Dr. MacCallum has shown very good judgment and a thorough knowledge of the subject in the selection of the thirty illustrations that have been added. Here and there the presence of additional illustrations could not be considered superfluous—for example a figure showing an island of Langerhans—but in treating so comprehensive a subject in a relatively brief space, the difficult question is not what should be discussed and figured, but what may with propriety be omitted.

That portion of the text which deals with general and special microscopic technique contains brief descriptions of the more generally known methods used in the preparation of tissues and organs for microscopic study; it must be said, however, that somewhat fuller treatment, more particularly of certain of the special methods mentioned, would render this section more serviceable to the beginning student. The volume contains an author's index and a very good general index, with numerous very useful cross-references.

In conclusion it may be said that it is a pleasure to review a work, which presents so many admirable features and which is so singularly free from even minor errors, one which can be so warmly recommended. Dr. MacCallum has shown excellent judgment in his capacity as editor and has rendered a distinct service in placing this work within the reach of English-speaking students. He is to be sincerely congratulated.

The Diseases of the Nose, Throat and Ear. By CHARLES P. GRAYSON, A. M., M. D., Lecturer on Laryngology and Rhinology in the Medical Department of the University of Pennsylvania; Physician in Charge of the Department for Diseases of the Nose and Throat in the Hospital of the University of Pennsylvania; Laryngologist and Otologist to the Philadelphia Hospital. Illustrated with 129 engravings and 8 plates in colors and monochrome. (*Philadelphia and New York: Lea Brothers & Co.*)

The superior excellence of this work is the only excuse necessary for its appearance in a field already somewhat crowded. Dr. Grayson has not attempted to make this an exhaustive resume of the subject with a statement of all the conflicting views upon the different diseases and their treatment, but has, instead, fully considered all the affections of these organs that are commonly met with and presented the plan of treatment in each case which has in his own experience proven most satisfactory. While such a method seems dogmatic it has, nevertheless, certain advantages. The student is not embarrassed by contradictory opinions, the value of which he is not able to determine, and the physician, in appealing to such a book, derives all the benefits of a personal consultation with the author.

The book is deserving of our highest praise. Taken in its entirety it presents a high standard throughout. Every topic is presented in a modern, up-to-date way. It is difficult to select any chapters for special consideration unless the reviewer takes those that interested him most or which seem to be most worthy of the special attention of his readers. The chapter on hay fever appealed to us strongly because of the existence of that affection in our family and because we were just recovering from our own initial attack. We suspect the author has been a victim himself, for he describes the symptoms with so much feeling; at any rate, he presents here the best article on the subject, from etiology to treatment, that we have seen.

We wish to direct the especial attention of physicians in this part of the country to what Dr. Grayson has to say of adenoid growths. His plea for their complete removal at one operation receives our hearty endorsement. In the majority of cases this will probably demand the administration of a general anesthetic, but, even so, the method is based upon the sound surgical principles of doing a perfect operation in the shortest space of time consistent with careful work and with the least shock to the

patient. We have never felt that the forceps operation as so commonly performed, which consists in taking out a bite to-day and another at a future sitting, provided the child will submit to torture a second time, was good surgery, and have wondered at the objections to the more thorough plan. We are also glad to see the "finger-nail method" tabooed. Some form of curette to be worn over the finger may be permissible, but to deliberately wound soft tissues with the nail, knowing the difficulties in the way of sterilizing it, is to assume considerable risk of infection. Furthermore, as Grayson points out, the method is seldom sufficient to eradicate a growth which is of even ordinary size and consistence.

Nearly one-half the book is devoted to Otology, those diseases mainly being considered which have their origin in some abnormal condition of the throat or nose and the general practitioner will find this part especially valuable. These affections are seldom seen by the specialist until they have reached an advanced stage, and the family physician, therefore, has the best opportunity to detect and treat them successfully. He will have here a useful guide in differential diagnosis accompanied by the best directions for treatment.

In the very excellent chapters dealing with suppurative otitis media and its sequelae we regret to see the phrase "laudable pus" used (page 423, top line). Quibbling over a word may not be desirable, particularly in a work of such general excellence, but the word "laudable" is capable of conveying a false security to so many who will be impressed by it that we fear it to be a very dangerous adjective. A more appropriate descriptive word should certainly be found if we would relieve ourselves of all shadow of responsibility for the all too prevalent idea that a purulent flow from the ear is a laudable condition. The danger lies not so much in the use of the word as in its possible misinterpretation.

The appearance of the book cannot be too highly praised; the cover is beautiful, the paper heavy and of fine finish, the type clear and distinct, and the illustrations both appropriate and well executed. Author and publisher are to be thanked and congratulated alike. H. O. R.

A Nurse's Guide for the Operating Room. By NICHOLAS SENN, M. D., Ph. D., LL. D., C. M., Professor of Surgery, Rush Medical College, etc. Published under the direction of the Sisters of Charity, St. Joseph's Hospital, Chicago. (*Chicago: W. T. Keener & Co., 90 Wabash Avenue, 1902.*)

This manual for the guidance of nurses has been prepared by Dr. Senn to meet the needs which arise in the performance of surgical operations in hospitals and private houses. It is concisely and clearly written and the directions given are explicit, painstaking and valuable. It is true it is primarily written for those who are assisting in Dr. Senn's own operations, and is thus all the more valuable as indicating his practical methods. Some omissions may be mentioned. For example, he does not mention the use of rubber gloves, notwithstanding the almost universal employment of them in America during the past three years. In the disinfection of cat-gut he does not speak of the cumol method, which is probably the most reliable of all forms of catgut disinfection. A chapter on metric data with examples for the change of the metrical system into its equivalents and *vice versa* is an interesting and helpful feature of the book.

The Diseases of Infancy and Childhood. For the use of students and practitioners. By HENRY KOPLIK, M. D., Attending Pediatrist to Mt. Sinai Hospital. (*New York and Philadelphia: Lea Brothers & Co., 1902.*)

After reading this book, meritorious as it is in many respects, one who has been familiar with the excellent work of the author in pediatrics has a feeling of disappointment. To condense into a volume of this size a subject which has grown so large as pediatrics has been a difficult undertaking—and what has been gained in conciseness has been lost in clearness and literary style. The reader can but regret the short, choppy, loosely constructed sentences which are characteristic of many of the chapters. These with many typographical errors give one the impression that the book has been rather hurriedly written and printed.

Unquestionably the best chapters in the book are those on the specific infectious diseases, all of which are treated most satisfactorily.

Considering the great importance of gastro-enteric diseases and infant feeding, one has a right to expect more detail in description of the preparation of food and the management of patients than is found. The author himself confesses that his conclusions on raw milk are not clear but rather confusing. Contrary to the general acceptance he denies that the use of atropine and morphine in such collapsed conditions as cholera infantum is beneficial.

On account of the pain, slowness of absorption, the tendency to extravasation of blood, and its solvent action on the red blood cells he uses subcutaneous injections of salt solution instead, only, however, as a last resort and then in quantities of twenty to thirty cc. twice or three times daily.

The mouths of breast-fed infants, in the author's judgment, are not to be washed, the necessity for this being avoided by careful attention to the mother's nipple; in bottle-fed children the mouth should be washed once daily.

The author considers Babinsky's reflex of no value in children under two years and Kernig's symptom of none under one year.

For congenital syphilis he prefers calomel to inunctions.

His description of lumbar puncture and his conclusions as to the diagnostic value of the fluid are especially clear. He agrees with Lichtheim and Pfaundler, and relies upon the cobweblike funnel shaped coagulum which begins to form in the test tube of fluid from tuberculous meningitis within two hours, and is complete in twenty-four hours.

Throughout, the book shows the author's wide acquaintance with the literature and too, his large personal experience and while as has been said, it is somewhat disappointing in certain particulars, as a whole, it is of great value to both student and practitioner.

The illustrations are numerous, well selected and unusually well reproduced; the type and paper are very good.

The Diseases of Infancy and Childhood. For the use of students and practitioners. By L. EMMET HOLT, M. D., LL. D., Professor of Diseases of Children in the College of Physicians and Surgeons, New York. (*New York: D. Appleton & Co., 1902.*)

It is high praise to say that this second edition is all which any person familiar with the first edition might have expected.

Fully conversant with the literature, with a rare hospital and pathological experience and possessing a large and varied private practice, the author is equipped beyond most to write a work on pediatrics from the point of view of student and practitioner. The work is comprehensive but never tiresome; it is thoroughly abreast with recent investigations, and covers the field in its medical aspect. The author combines to an unusual degree the careful observer, the interesting teacher, the progressive practitioner and the facile writer.

In a work of such general merit it is difficult to select any part more worthy of special commendation than another. It may be said, however, that the section on nutrition, including milk and infant feeding and the chapters on diseases of digestion

and the respiratory system, commend themselves particularly because of a carefulness of detail in the description of disease and in the management of cases almost unique in text books.

The author recognizing the scant attention which has been given to pathological changes in very early life, in most works on pathology and how necessary some knowledge of such changes is to a proper appreciation of symptoms and diagnosis has given more space to such description than is usual in clinical works, and has illustrated them by well selected drawings and photographs.

The general arrangement of chapters and grouping of subjects are much the same as in the first edition, but many chapters have been rewritten and enlarged and a number of tables, diagrams, and charts added, which aid materially in the clearness of clinical description.

In conclusion it may be said that since an accurate statement of underlying principles determines the value of a text-book to students, and since practical usefulness is the standard for the general practitioner, this second edition of Holt's work will be found to meet the needs of both to-day in the same satisfactory manner as the first did five years ago.

The work of the publishers in type and in the reproduction of photographs and drawings has been well done and the book presents an attractive appearance.

Atlas and Epitome of Abdominal Hernia. By PRIVATDOCENT DR. GEORG SULTAN, of Gottingen, Edited, with additions, by WILLIAM B. COLEY, M. D., Clinical Lecturer on Surgery, Columbia University (College of Physicians and Surgeons). With 119 illustrations, 36 of them in colors, and 277 pages of text. (*Philadelphia and London: W. B. Saunders & Co., 1902.*) Cloth, $3.00 net.

This is undoubtedly the best brief work on hernia that has yet been published. It is ably written by Sultan whose ideas are thoroughly modern, and carefuly edited by Coley whose experience qualifies him to both edit and supplement such a work.

Both palliative and radical methods of treatment are given due emphasis. The author states that we now regard as a sufficient indication for operation the wish of the patient to be emancipated from his truss and the danger of eventual strangulation; the only questions being whether the operation is contraindicated in the very young, in the very old, or by an enormous size of the hernia.

The illustrations, most of which are original, are numerous, artistic, and instructive. An apparent carelessness in the preparation of the index, so typical of many American text-books, should not pass unnoticed.

The Diagnosis of Surgical Diseases. By E. ALBERT, late Director and Professor of the First Surgical Clinic, University of Vienna. Authorized translation from the 8th enlarged and revised edition by ROBERT T. FRANK, A. M., M. D., with 59 illustrations. (*New York: D. Appleton & Co., 1902.*)

This book of 419 pages is by no means a complete treatise on surgical diagnosis, but does discuss in a very interesting way a large number of the more important purely surgical affections and gives in an entertaining style quite different from the ordinary systematic text-book the process of reasoning by which the surgeon may arrive at a diagnosis. The book has long been considered a classic by Germans both as regards the scientific value of its contents and the style in which it is written. Dr. Frank is to be congratulated that in this translation much of the peculiar charm of the original has been preserved. The book follows closely the style of a clinical lecture but is more systematic than are the lectures of the average teacher of surgery. In some subjects, for example appendicitis, the teachings seem a little antiquated specially to the American student, but for the most part in questions of diagnosis there is far less opportunity for change than in matters pertaining to the treatment of surgical affections. While there are numerous works on medical diagnosis accessible to American readers, books on surgical diagnosis are comparatively few and this volume fills a decided need. We would confidently recommend it as a book which can be read with interest and profit by the student, practitioner or experienced surgeon.

General Paresis. Practical and Clinical. By ROBERT HOWLAND CHASE, A. M., M. D., Physician-in-Chief Friends' Asylum for the Insane, etc. Illustrated. (*Philadelphia: P. Blakiston's Son & Co., 1012 Walnut St., 1902.*)

This book of less than 300 pages contains 18 chapters and an index. It is practically a compilation of the English literature of general paresis, prepared for the guidance of general practitioners who may happen to see early cases. The arrangement of the book is such as to render it a convenient store-house, easily accessible, of clinical facts concerning this disease. The undertaking evinces great industry and a wide reading of current English medical literature.

The illustrations are probably the most valuable feature of the book, as they portray paresis in its different stages. The chapter on treatment gives an excellent resume of various forms of medical treatment. The list of remedies is a long and disappointing one. The book is attractively printed.

A Manual of Instruction in the Principles of Prompt Aid to the Injured, including a chapter on Hygiene and the Drill Regulations for the Hospital Corps, U. S. A. Designed for military and civil use. By ALVAH H. DOTY, M. D., Health Officer of the Port of New York. Fourth edition, revised and enlarged. (*New York: D. Appleton & Co., 1902.*)

This volume is the 4th edition of a work which has been before the public for the past thirteen years. It contains a modicum of anatomy, physiology and hygiene, with clear and forcible directions as to the care of the sick and injured. Directions are given for the control of hemorrhage, the prompt and temporary treatment of burns, fractures and other injuries, the treatment of cases of poisoning and the resuscitation of the drowned. There are also chapters on the disinfection of rooms and on the removal and transportation of the wounded from the battlefield. The book is concise and practical and can be recommended for the instruction of male nurses and orderlies and all other persons who from their occupations are required to give first aid to the injured.

The Principles and Practice of Bandaging. By GWILYM G. DAVIS, M. D., Asst. Professor of Applied Anatomy, University of Pennsylvania. Illustrated from original drawings by the author. (*Philadelphia: P. Blakiston's Son & Co., 1012 Walnut St., 1902.*)

This is an admirable little book on bandaging. The illustrations from original drawings by the author are an excellent feature. An effort is made to simplify the whole subject of bandaging and to eliminate the refinements which have come down to surgeons as a matter of tradition. The table of contents, although full and systematic, does not compensate for the lack of a good alphabetical index. All hand-books of this character should be easily accessible to the reader.

Surgical Principles and Diseases of the Face, Mouth, and Jaws. A Text-Book of the Surgical Principles and Surgical Diseases of the Face, Mouth, and Jaws. For Dental Students. By H. HORACE GRANT, A. M., M. D., Professor of Surgery and of Clinical Surgery, Hospital College of Medicine, Louisville. Octavo volume of 231 pages, with 68 illustrations. (*Philadelphia and London: W. B. Saunders & Co., 1902.*)

The author states in his preface that "the pathology of the essential processes of acute surgical diseases is not desired by the student of dentistry during his college days." A few quotations will show how successfully such an "exhaustive analysis" has been avoided in the book. "Forms of the toxins of pathogenic bacteria, rendered less virulent by attenuation, constitute the antitoxic serums used to prevent and cure diseases, as diphtheria and tetanus. Vaccination likewise is in a degree an example" (p. 12). Again, " . . . pus is the result of germs of suppuration, a quarter of a million being required to form a small abscess" (p. 37). The surgeon will be interested to learn that "Lupus is a tubercular germ, sometimes, as in the lupus exedens, of a malignant tendency" (p. 162), and that "Schleich's solution has no special value" (p. 64). The book is well bound and printed, but it can hardly expect a place on the shelves of any thoughtful student.

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STUDIES IN TYPHOID FEVER.

SERIES I-II-III.

The papers on Typhoid Fever, edited by Professor William Osler, M. D., and printed in Volumes IV, V and VIII of The Johns Hopkins Hospital Reports have been brought together, and bound in cloth.

The volume includes thirty-five papers by Doctors Osler, Thayer, Hewetson, Blumer, Flexner, Reed, Parsons, Finney, Cushing, Lyon, Mitchell, Hamburger, Dobbin, Camac, Gwyn, Emerson and Young. It contains 776 pages, large octavo, with illustrations. It gives an analysis and study of the cases of Typhoid Fever in The Johns Hopkins Hospital for the past ten years.

The price is $5.00 per copy. Only a few copies of the volume are on sale. Those wishing to purchase should address their orders to the JOHNS HOPKINS PRESS, BALTIMORE, MARYLAND.

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GENERAL STATEMENT.

The Medical Department of the Johns Hopkins University was opened for the instruction of students October, 1893. This School of Medicine is an integral and coördinate part of the Johns Hopkins University, and it also derives great advantages from its close affiliation with the Johns Hopkins Hospital. The required period of study for the degree of Doctor of Medicine is four years. The academic year begins on the first Tuesday in October and ends the second Tuesday of June, with short recesses at Christmas and Easter. Men and women are admitted upon the same terms.

In the methods of instruction especial emphasis is laid upon practical work in the Laboratories and in the Dispensary and Wards of the Hospital. While the aim of the School is primarily to train practitioners of medicine and surgery, it is recognized that the medical art should rest upon a suitable preliminary education and upon thorough training in the medical sciences. The first two years of the course are devoted mainly to practical work, combined with demonstrations, recitations and lectures, in the Laboratories of Anatomy, Physiology, Physiological Chemistry, Pharmacology and Toxicology, Pathology and Bacteriology. During the last two years the student is given abundant opportunity for the personal study of cases of disease, his time being spent largely in the Hospital Wards and Dispensary and in the Clinical Laboratories. Especially advantageous for thorough clinical training are the arrangements by which students, divided into groups, engage in practical work in the Dispensary, and throughout the fourth year serve as clinical clerks and surgical dressers in the wards of the Hospital.

REQUIREMENTS FOR ADMISSION.

As candidates for the degree of Doctor of Medicine the school receives:

1. Those who have satisfactorily completed the Chemical-Biological course which leads to the A. B. degree in this university.

2. Graduates of approved colleges or scientific schools who can furnish evidence: (a) That they have acquaintance with Latin and a good reading knowledge of French and German; (b) That they have such knowledge of physics, chemistry, and biology as is imparted by the regular minor courses given in these subjects in this university.

The phrase "a minor course," as here employed, means a course that requires a year for its completion. In physics, four class-room exercises and three hours a week in the laboratory are required; in chemistry and biology, four class-room exercises and five hours a week in the laboratory in each subject.

3. Those who give evidence by examination that they possess the general education implied by a degree in arts or in science from an approved college or scientific school, and the knowledge of French, German, Latin, physics, chemistry, and biology above indicated.

Applicants for admission will receive blanks to be filled out relating to their previous courses of study.

They are required to furnish certificates from officers of the college or scientific schools where they have studied, as to the courses pursued in physics, chemistry and biology. If such certificates are satisfactory, no examination in these subjects will be required from those who possess a degree in arts or science from an approved college or scientific school.

Hearers and special workers, not candidates for a degree, will be received at the discretion of the Faculty.

ADMISSION TO ADVANCED STANDING.

Applicants for admission to advanced standing must furnish evidence (1) that the foregoing terms of admission as regards preliminary training have been fulfilled, (2) that courses equivalent in kind and amount to those given here, preceding that year of the course for admission to which application is made, have been satisfactorily completed, and (3) must pass examinations at the beginning of the session in October in all the subjects that have been already pursued by the class to which admission is sought. Certificates of standing elsewhere cannot be accepted in place of these examinations.

SPECIAL COURSES FOR GRADUATES IN MEDICINE.

Since the opening of the Johns Hopkins Hospital in 1889, courses of instruction have been offered to graduates in medicine. The attendance upon these courses has steadily increased with each succeeding year and indicates gratifying appreciation of the special advantages here afforded. The special courses of instruction for graduates in medicine are now given annually during the months of April, May and June. During April there are courses in Normal Histology and Gross Anatomy. In May and June courses are offered in Pathology, Bacteriology, Clinical Microscopy, General Medicine, Surgery, Gynecology, Obstetrics, Dermatology, Diseases of Children, Diseases of the Nervous System, Genito-Urinary Diseases, Laryngology and Rhinology, and Ophthalmology and Otology. The instruction is intended to meet the requirements of practitioners of medicine, and is almost wholly of a practical character. It includes laboratory courses, demonstrations, bedside teaching, and clinical instruction in the wards, dispensary, amphitheatre, and operating-rooms of the Hospital. These courses are open to those who have taken a medical degree and who give evidence satisfactory to the several instructors that they are prepared to profit by the opportunities here offered. The number of students who can be accommodated in some of the practical courses is necessarily limited. For these the places are assigned according to the date of application.

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